Relatório Analisador Léxico

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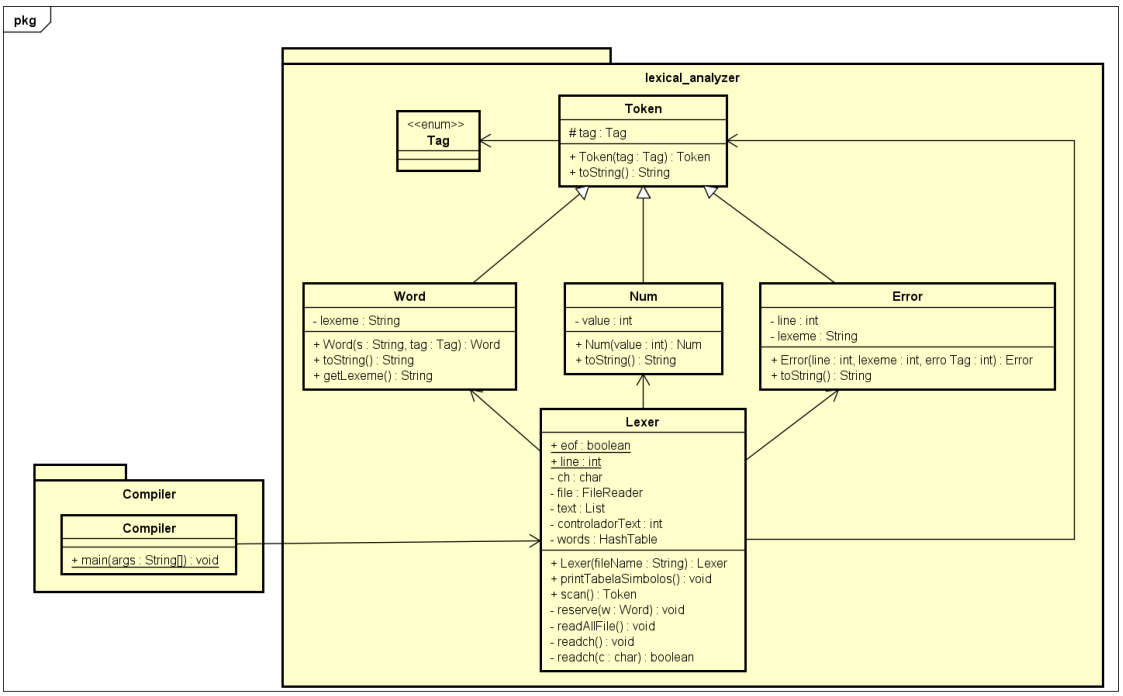
Implementação

O Analisador Léxico foi feito em Java. Utilizando a IDE Netbeans. A implementação está descrita no diagrama de Classes abaixo.



Casos de testes

- **teste1.txt**

Digite o nome do arquivo a ser compilado:
teste1.txt

Fluxo de Tokens

<PROGRAM ("program")>
<INT ("int")>
<ID ("a")>
<COMMA (,)>
<ID ("b")>
<DOT_COMMA (;)>
<INT ("int")>
<ID ("result")>
<DOT_COMMA (;)>
<ID ("float")>
<ID ("a")>
<COMMA (,)>
<ID ("x")>
<COMMA (,)>
<ID ("total")>
<DOT_COMMA (;)>
<ID ("a")>
<ASSIGN (=)>
<NUM ("2")>

<DOT_COMMA (;)>
<ID ("x")>
<ASSIGN (=)>
<ERROR_CARACTER_INVALIDO (linha: 7, caracter inválido: ".")>
<NUM ("1")>
<DOT_COMMA (;)>
<SCAN ("scan")>
<OPEN_PAREN (()>
<ID ("b")>
<CLOSE_PAREN ())>
<DOT_COMMA (;)>
<SCAN ("scan")>
<OPEN_PAREN (()>
<ID ("y")>
<CLOSE_PAREN ())>
<ID ("result")>
<ASSIGN (=)>
<OPEN_PAREN (()>
<ID ("a")>
<MULT (*)>
<ID ("b")>
<PLUS (+)>
<PLUS (+)>
<NUM ("1")>
<CLOSE_PAREN ())>
<DIV (/)>
<NUM ("2")>
<DOT_COMMA (;)>
<PRINT ("print")>
<STRING ("Resultado: ")>
<DOT_COMMA (;)>
<PRINT ("print")>
<OPEN_PAREN (()>
<ID ("result")>
<CLOSE_PAREN ())>
<DOT_COMMA (;)>
<PRINT ("print")>
<OPEN_PAREN (()>
<STRING ("Total: ")>
<CLOSE_PAREN ())>
<DOT_COMMA (;)>
<ID ("total")>
<ASSIGN (=)>
<ID ("y")>
<DIV (/)>
<ID ("x")>
<DOT_COMMA (;)>
<PRINT ("print")>
<OPEN_PAREN (()>
<STRING ("Total: ")>
<DOT_COMMA (;)>
<PRINT ("print")>
<OPEN_PAREN (()>
<ID ("total")>
<CLOSE_PAREN ())>
<DOT_COMMA (;)>
<END ("end")>

Tabela de Simbolos

<STRING ("string")>
<INT ("int")>
<PRINT ("print")>
<END ("end")>
<PROGRAM ("program")>
<ID ("y")>
<ID ("x")>
<ID ("result")>
<SCAN ("scan")>
<IF ("if")>
<WHILE ("while")>
<DO ("do")>
<ELSE ("else")>
<THEN ("then")>
<ID ("b")>
<ID ("a")>
<ID ("float")>
<ID ("total")>

- **teste2.txt**

Digite o nome do arquivo a ser compilado:
teste2.txt

Fluxo de Tokens

<PROGRAM ("program")>
<INT ("int")>
<ERROR_CARACTER_INVALIDO (linha: 3, caracter inválido: ":")>
<ID ("a")>
<COMMA (,)>
<ID ("c")>
<DOT_COMMA (;)>
<ID ("float")>
<ID ("d")>
<COMMA (,)>
<ERROR_CARACTER_INVALIDO (linha: 4, caracter inválido: "_")>
<ID ("e")>
<DOT_COMMA (;)>
<ID ("a")>
<ASSIGN (=)>
<NUM ("0")>
<DOT_COMMA (;)>
<ID ("d")>
<ASSIGN (=)>
<NUM ("3")>
<ERROR_CARACTER_INVALIDO (linha: 6, caracter inválido: ".")>
<NUM ("5")>
<ID ("c")>
<ASSIGN (=)>
<ID ("d")>
<DIV (/)>
<NUM ("1")>
<ERROR_CARACTER_INVALIDO (linha: 7, caracter inválido: ".")>
<NUM ("2")>
<DOT_COMMA (;)>
<ID ("Scan")>
<OPEN_PAREN (()>
<ID ("a")>
<CLOSE_PAREN ())>

<DOT_COMMA (;)>
<ID ("Scan")>
<OPEN_PAREN (()>
<ID ("c")>
<CLOSE_PAREN ())>
<DOT_COMMA (;)>
<ID ("b")>
<ASSIGN (=)>
<ID ("a")>
<MULT (*)>
<ID ("a")>
<DOT_COMMA (;)>
<ID ("c")>
<ASSIGN (=)>
<ID ("b")>
<PLUS (+)>
<ID ("a")>
<MULT (*)>
<OPEN_PAREN (()>
<NUM ("1")>
<PLUS (+)>
<ID ("a")>
<MULT (*)>
<ID ("c")>
<CLOSE_PAREN ())>
<DOT_COMMA (;)>
<PRINT ("print")>
<OPEN_PAREN (()>
<STRING ("Resultado: ")>
<CLOSE_PAREN ())>
<DOT_COMMA (;)>
<PRINT ("print")>
<ID ("c")>
<DOT_COMMA (;)>
<ID ("a")>
<ASSIGN (=)>
<ID ("b")>
<PLUS (+)>
<ID ("c")>
<PLUS (+)>
<ID ("d")>
<CLOSE_PAREN ())>
<DIV (/)>
<NUM ("22")>
<DOT_COMMA (;)>
<ID ("e")>
<ASSIGN (=)>
<ID ("val")>
<PLUS (+)>
<ID ("c")>
<PLUS (+)>
<ID ("a")>
<DOT_COMMA (;)>
<PRINT ("print")>
<OPEN_PAREN (()>
<STRING ("E: ")>
<CLOSE_PAREN ())>
<DOT_COMMA (;)>
<PRINT ("print")>
<OPEN_PAREN (()>

<ID ("e")>
<CLOSE_PAREN ())>
<DOT_COMMA (;)>

Tabela de Simbolos

<STRING ("string")>
<INT ("int")>
<PRINT ("print")>
<END ("end")>
<PROGRAM ("program")>
<SCAN ("scan")>
<IF ("if")>
<WHILE ("while")>
<DO ("do")>
<ELSE ("else")>
<ID ("Scan")>
<ID ("e")>
<THEN ("then")>
<ID ("d")>
<ID ("c")>
<ID ("b")>
<ID ("a")>
<ID ("float")>
<ID ("val")>

- **teste3.txt**

Digite o nome do arquivo a ser compilado:
teste3.txt

Fluxo de Tokens

<PROGRAM ("program")>
<INT ("int")>
<ID ("pontuacao")>
<COMMA (,)>
<ID ("pontuacaoMaxima")>
<COMMA (,)>
<ID ("disponibilidade")>
<DOT_COMMA (;)>
<STRING ("string")>
<ID ("pontuacaoMinima")>
<DOT_COMMA (;)>
<ID ("disponibilidade")>
<ASSIGN (=)>
<STRING ("Sim")>
<DOT_COMMA (;)>
<ID ("pontuacaoMinima")>
<ASSIGN (=)>
<NUM ("50")>
<DOT_COMMA (;)>
<ID ("pontuacaoMaxima")>
<ASSIGN (=)>
<NUM ("100")>
<DOT_COMMA (;)>
<ERROR_CARACTER_INESPERADO (linha: 9, esperado: "*/")>

Tabela de Simbolos

<PRINT ("print")>
<IF ("if")>
<ID ("pontuacao")>
<ID ("disponibilidade")>
<END ("end")>
<WHILE ("while")>
<DO ("do")>
<THEN ("then")>
<PROGRAM ("program")>
<STRING ("string")>
<INT ("int")>
<ID ("pontuacaoMaxima")>
<ELSE ("else")>
<ID ("pontuacaoMinima")>
<SCAN ("scan")>

- **teste4.txt**

Digite o nome do arquivo a ser compilado:
teste4.txt

Fluxo de Tokens

<INT ("int")>
<ERROR_CARACTER_INVALIDO (linha: 1, caracter inválido: ":")>
<ID ("a")>
<COMMA (,)>
<ID ("aux")>
<ERROR_CARACTER_INVALIDO (linha: 1, caracter inválido: "$")>
<COMMA (,)>
<ID ("b")>
<DOT_COMMA (;)>
<STRING ("string")>
<ID ("nome")>
<COMMA (,)>
<ID ("sobrenome")>
<COMMA (,)>
<ID ("msg")>
<DOT_COMMA (;)>
<PRINT ("print")>
<OPEN_PAREN (()>
<ID ("Nome")>
<ERROR_CARACTER_INVALIDO (linha: 4, caracter inválido: ":")>
<CLOSE_PAREN ())>
<DOT_COMMA (;)>
<SCAN ("scan")>
<OPEN_PAREN (()>
<ID ("nome")>
<CLOSE_PAREN ())>
<DOT_COMMA (;)>
<PRINT ("print")>
<OPEN_PAREN (()>
<STRING ("Sobrenome: ")>
<CLOSE_PAREN ())>
<DOT_COMMA (;)>
<SCAN ("scan")>
<OPEN_PAREN (()>
<ID ("sobrenome")>
<CLOSE_PAREN ())>
<DOT_COMMA (;)>

<ID ("msg")>
<ASSIGN (=)>
<STRING ("Ola, ")>
<PLUS (+)>
<ID ("nome")>
<PLUS (+)>
<STRING (" ")>
<PLUS (+)>
<ID ("sobrenome")>
<PLUS (+)>
<STRING ("!")>
<DOT_COMMA (;)>
<ID ("msg")>
<ASSIGN (=)>
<ID ("msg")>
<PLUS (+)>
<NUM ("1")>
<DOT_COMMA (;)>
<PRINT ("print")>
<OPEN_PAREN (()>
<ID ("msg")>
<CLOSE_PAREN ())>
<DOT_COMMA (;)>
<SCAN ("scan")>
<OPEN_PAREN (()>
<ID ("a")>
<CLOSE_PAREN ())>
<DOT_COMMA (;)>
<SCAN ("scan")>
<OPEN_PAREN (()>
<ID ("b")>
<CLOSE_PAREN ())>
<DOT_COMMA (;)>
<IF ("if")>
<OPEN_PAREN (()>
<ID ("a")>
<GT (>)>
<ID ("bb")>
<CLOSE_PAREN ())>
<THEN ("then")>
<ID ("aux")>
<ASSIGN (=)>
<ID ("b")>
<DOT_COMMA (;)>
<ID ("b")>
<ASSIGN (=)>
<ID ("a")>
<DOT_COMMA (;)>
<ID ("a")>
<ASSIGN (=)>
<ID ("aux")>
<DOT_COMMA (;)>
<END ("end")>
<DOT_COMMA (;)>
<PRINT ("print")>
<OPEN_PAREN (()>
<STRING ("Apos a troca: ")>
<CLOSE_PAREN ())>
<DOT_COMMA (;)>
<ID ("out")>

<OPEN_PAREN (()>
<ID ("a")>
<CLOSE_PAREN ())>
<DOT_COMMA (;)>
<ID ("out")>
<OPEN_PAREN (()>
<ID ("b")>
<CLOSE_PAREN ())>
<END ("end")>

Tabela de Simbolos

<STRING ("string")>
<INT ("int")>
<PRINT ("print")>
<END ("end")>
<ID ("msg")>
<ID ("bb")>
<PROGRAM ("program")>
<ID ("sobrenome")>
<SCAN ("scan")>
<IF ("if")>
<WHILE ("while")>
<DO ("do")>
<ID ("nome")>
<ID ("out")>
<ELSE ("else")>
<THEN ("then")>
<ID ("b")>
<ID ("a")>
<ID ("aux")>
<ID ("Nome")>

- **teste5.txt**

Digite o nome do arquivo a ser compilado:
teste5.txt

Fluxo de Tokens

<PROGRAM ("program")>
<INT ("int")>
<ID ("a")>
<COMMA (,)>
<ID ("b")>
<COMMA (,)>
<ID ("c")>
<COMMA (,)>
<ID ("maior")>
<COMMA (,)>
<ID ("outro")>
<DOT_COMMA (;)>
<DO ("do")>
<PRINT ("print")>
<OPEN_PAREN (()>
<STRING ("A")>
<CLOSE_PAREN ())>
<DOT_COMMA (;)>
<SCAN ("scan")>
<OPEN_PAREN (()>

<ID ("a")>
<CLOSE_PAREN ())>
<DOT_COMMA (;)>
<PRINT ("print")>
<OPEN_PAREN (()>
<STRING ("B")>
<CLOSE_PAREN ())>
<DOT_COMMA (;)>
<SCAN ("scan")>
<OPEN_PAREN (()>
<ID ("b")>
<CLOSE_PAREN ())>
<DOT_COMMA (;)>
<PRINT ("print")>
<OPEN_PAREN (()>
<STRING ("C")>
<CLOSE_PAREN ())>
<DOT_COMMA (;)>
<SCAN ("scan")>
<OPEN_PAREN (()>
<ID ("c")>
<CLOSE_PAREN ())>
<DOT_COMMA (;)>
<LINE_COMMENT (//)>
<IF ("if")>
<OPEN_PAREN (()>
<OPEN_PAREN (()>
<ID ("a")>
<GT (>)>
<ID ("bb")>
<CLOSE_PAREN ())>
<AND (&&)>
<OPEN_PAREN (()>
<ID ("a")>
<GT (>)>
<ID ("cc")>
<CLOSE_PAREN ())>
<CLOSE_PAREN ())>
<ID ("maior")>
<ASSIGN (=)>
<ID ("a")>
<ELSE ("else")>
<IF ("if")>
<OPEN_PAREN (()>
<ID ("b")>
<GT (>)>
<ID ("cc")>
<CLOSE_PAREN ())>
<THEN ("then")>
<ID ("maior")>
<ASSIGN (=)>
<ID ("b")>
<DOT_COMMA (;)>
<ELSE ("else")>
<ID ("maior")>
<ASSIGN (=)>
<ID ("c")>
<DOT_COMMA (;)>
<END ("end")>
<END ("end")>

<PRINT ("print")>
<OPEN_PAREN (()>
<STRING ("Maior valor:")>
<ERROR_CARACTER_INESPERADO (linha: 24, esperado: """)>
<PRINT ("print")>
<OPEN_PAREN (()>
<ID ("maior")>
<CLOSE_PAREN ())>
<DOT_COMMA (;)>
<PRINT ("print")>
<OPEN_PAREN (()>
<STRING ("Outro? ")>
<CLOSE_PAREN ())>
<DOT_COMMA (;)>
<SCAN ("scan")>
<OPEN_PAREN (()>
<ID ("outro")>
<CLOSE_PAREN ())>
<DOT_COMMA (;)>
<WHILE ("while")>
<OPEN_PAREN (()>
<ID ("outro")>
<GE (>=)>
<NUM ("0")>
<CLOSE_PAREN ())>
<END ("end")>

Tabela de Simbolos

<STRING ("string")>
<INT ("int")>
<ID ("maior")>
<PRINT ("print")>
<END ("end")>
<ID ("bb")>
<PROGRAM ("program")>
<ID ("outro")>
<SCAN ("scan")>
<IF ("if")>
<ID ("cc")>
<WHILE ("while")>
<DO ("do")>
<ELSE ("else")>
<THEN ("then")>
<ID ("c")>
<ID ("b")>
<ID ("a")>

- **teste6.txt**

Código do teste6.txt

```
program
 int @ pontuacao, pontuacaoMaxima, disponibilidade;
 string pontuacaoMinima;

 disponibilidade = "Sim";
 pontuacaoMinima = 50;
 pontuacaoMaxima = 100;
```

```
 if ((pontuação > pontuacaoMinima) & (disponibilidade=="Sim") then
  print("Candidato aprovado");
 else
  if ((pontuação > pontuacaoMinima) | (disponibilidade=="Sim") then
   print("Candidato aprovado");
  end
  if ((pontuação > pontuacaoMinima) || (disponibilidade=="Sim") then
   print("Candidato aprovado");
  end
 end
end
```

Teste 6:

Digite o nome do arquivo a ser compilado:
teste6.txt

Fluxo de Tokens

```
<PROGRAM ("program")>
<INT ("int")>
<ERROR_CARACTER_INVALIDO (linha: 2, caracter inválido: "@")>
<ID ("pontuacao")>
<COMMA (,)>
<ID ("pontuacaoMaxima")>
<COMMA (,)>
<ID ("disponibilidade")>
<DOT_COMMA (;)>
<STRING ("string")>
<ID ("pontuacaoMinima")>
<DOT_COMMA (;)>
<ID ("disponibilidade")>
<ASSIGN (=)>
<STRING ("Sim")>
<DOT_COMMA (;)>
<ID ("pontuacaoMinima")>
<ASSIGN (=)>
<NUM ("50")>
<DOT_COMMA (;)>
<ID ("pontuacaoMaxima")>
<ASSIGN (=)>
<NUM ("100")>
<DOT_COMMA (;)>
<IF ("if")>
<OPEN_PAREN (()>
<OPEN_PAREN (()>
<ID ("pontuação")>
<GT (>)>
<ID ("pontuacaoMinima")>
<CLOSE_PAREN ())>
<ERROR_CARACTER_INESPERADO (linha: 9, esperado: "&")>
<OPEN_PAREN (()>
<ID ("disponibilidade")>
<EQ (==)>
<STRING ("Sim")>
<CLOSE_PAREN ())>
<THEN ("then")>
<PRINT ("print")>
<OPEN_PAREN (()>
<STRING ("Candidato aprovado")>
```

<CLOSE_PAREN ())>
<DOT_COMMA (;)>
<ELSE ("else")>
<IF ("if")>
<OPEN_PAREN (()>
<OPEN_PAREN (()>
<ID ("pontuação")>
<GT (>)>
<ID ("pontuacaoMinima")>
<CLOSE_PAREN ())>
<ERROR_CARACTER_INESPERADO (linha: 12, esperado: "|")>
<OPEN_PAREN (()>
<ID ("disponibilidade")>
<EQ (==)>
<STRING ("Sim")>
<CLOSE_PAREN ())>
<THEN ("then")>
<PRINT ("print")>
<OPEN_PAREN (()>
<STRING ("Candidato aprovado")>
<CLOSE_PAREN ())>
<DOT_COMMA (;)>
<END ("end")>
<IF ("if")>
<OPEN_PAREN (()>
<OPEN_PAREN (()>
<ID ("pontuação")>
<GT (>)>
<ID ("pontuacaoMinima")>
<CLOSE_PAREN ())>
<OR (||)>
<OPEN_PAREN (()>
<ID ("disponibilidade")>
<EQ (==)>
<STRING ("Sim")>
<CLOSE_PAREN ())>
<THEN ("then")>
<PRINT ("print")>
<OPEN_PAREN (()>
<STRING ("Candidato aprovado")>
<CLOSE_PAREN ())>
<DOT_COMMA (;)>
<END ("end")>
<END ("end")>
<END ("end")>

Tabela de Simbolos

<PRINT ("print")>
<IF ("if")>
<ID ("pontuacao")>
<ID ("disponibilidade")>
<END ("end")>
<WHILE ("while")>
<DO ("do")>
<THEN ("then")>
<PROGRAM ("program")>
<STRING ("string")>
<INT ("int")>
<ID ("pontuação")>

<ID ("pontuacaoMaxima")>
<ELSE ("else")>
<ID ("pontuacaoMinima")>
<SCAN ("scan")>